

COURSE INFORMATION

Fall 2009

EGR 125

C++ Programming for Engineers

Pre-requisite: EGR 120 (or instructor permission)

Co-requisite: None

Credits: 4

Lecture Hours: 3

Lab Hours: 2

Instructor: Paul Gordy

Office: H-115 (ATC, VB Campus) or Room 1117 (Tri-Cities Center)

Phone: 822-7175 (VB)

Office Hours: to be announced in class

Email: PGordy@tcc.edu

Web page: www.tcc.edu/faculty/webpages/PGordy/

Required Material:

Each student is required to have the following materials:

1. **Required textbook:** C++ for Scientists & Engineers, 3rd Edition by Gary R. Bronson, Cengage Learning, 2010. (ISBN: 978-0-324-78643-9)
2. **Calculator:** Although only a basic scientific calculator is sufficient for this course, be aware that TCC Engineering students are required to own either a TI-86, TI-89, TI-92, HP-48, HP-49, HP-50, or a TI-NSPIRE-CAS calculator (primarily due to advanced features used in other Engineering courses).
3. **Data Storage:** Students should have a USB memory device for storing programs and related files. Write your name on the device as they are often accidentally left in the computer lab.
4. **C++ Compiler:** A free version of the DevC++ compiler from BloodShed is used in this course. It has been installed on the computers in the H151 and H209 labs and is available on the instructor's web page for students to download and install on their computers if they wish.

Grading:

Course grades will be computed based on the following percentages:

Tests, 3 @ 15%	45%
Programming Assignments	25%
Lab Exercises	10%
Homework	20%

Grades will be assigned according to the following scale:

90 - 100	A
80 - 90	B
70 - 80	C
60 - 70	D
0 - 60	F

Course Description:

EGR 125 is an introductory course for engineering and technical students, which covers methodologies and techniques of computer programming using the C++ programming language. Student projects involve writing, editing, storing, compiling, and executing C++ programs. Examples and assignments will emphasize the use of C++ to solve problems in Engineering. Structured algorithms and flowcharts are used in the development and organization of the computer programs. Specific topics covered include algorithm development, data types, decision and loop structures, functions, data files, arrays, pointers, classes and the Standard Template Library containers and iterators.

Course Objectives:

The general objectives of EGR 125 are that the student should be able to:

1. use computers for storing, editing, compiling, and executing C++ programs
2. develop object-oriented C++ programs
3. apply computer programming techniques to the solution of technical engineering problems

Homework:

Homework will be assigned regularly and is essential in preparing the student for tests and programming assignments. Homework will be collected on assigned due dates. Late homework will be accepted with a penalty of 10 points per week (or any portion of a week), but will not be accepted more than two weeks late. Absence when homework is collected results in homework being treated as late unless prior arrangements with the instructor have been made. Homework should be done neatly on loose-leaf paper and every problem must have the complete problem statement written out or points will be deducted from the homework grade. The lowest homework grade will be dropped.

Lab Exercises:

It is essential that you attend laboratory sessions as students will often receive assigned laboratory exercises that must be completed during the class. Laboratory exercises are simple programming project related to current material presented in class. If necessary, you can receive help from the instructor, and students are also encouraged to help each other to some extent. Grading is subjective and based on the observations of the instructor.

0 points – absent

1 point – worked on the lab exercise, but could not get it to function properly

2 points – finished the lab exercise, but needed a lot of help from the instructor or other students

3 points – completed the lab exercise with little help from the instructor

4 points – completed the lab exercise and also added extra features suggested by the instructor

No makeup grade will be allowed and the lowest lab grade will be dropped.

Absence:

A missed test results in a grade of 0 unless the student notifies the instructor prior to class or within 24 hours of the class with an adequate reason. Notification may be made by phone or by message (mailboxes are in Building A). If a class is missed it is the responsibility of the student to obtain any information, assignments, etc., given during class. Students with three or more absences may be withdrawn by the instructor from the course.

Internet Resources:

If you find yourself looking for additional information on programming topics using C++ you may want to investigate several sites offering free C++ tutorials, just Google “C++ tutorials”. Here is one you might want to check out:

<http://www.cprogramming.com/tutorial.html>

Tentative Course Outline:

Week	Textbook Chapters	Topics
1	1-2	Introduction to C++. Compiling your first program. Program structure, data types, arithmetic operations, arithmetic operations, variables, declarations, output, comments.
2	3	Assignment, formatted output, interactive input, library functions
3	4,5	Selection structures, repetition structures
4	5	Repetition structures (continued) Test #1 (Ch. 1-4)
5	6	Functions, reference parameters, overloading, global and local variables, scope resolution operator
6	6-7	Functions (continued) Arrays – one dimensional, multi-dimensional, Standard Template Library (STL)
7	7	Arrays (continued) Test #2 (Ch. 5-6)
8	8	I/O streams and data files
9	8,9	Data files, C-style character arrays, C++ strings
10	9	C-style character arrays, C++ strings
11	10	Introduction to classes, constructors
12	10	Introduction to classes (continued) Test #3 (Ch. 7-9)
13	11	Class functions and conversions, inheritance, polymorphism.
14	12	Pointers, dynamic array allocation.
15	13	Structures, Standard Template Library

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General Information

TCC College and Student Handbook

Students are responsible for being aware of the policies, procedures, and student responsibilities contained within the current edition of the Tidewater Community College Catalog and Student Handbook. Students should familiarize themselves with the College's policies regarding misconduct and inclement weather policies found in the Student Handbook.

Last Day to Withdraw Without Academic Penalty

You may withdraw from a course without academic penalty during the first 60% of a session and receive a grade of "W"(withdrawal). The last day to withdraw without academic penalty is **October 29, 2009**. After that date, the student will receive a failing grade of "F" or "U". Exceptions to this policy may be made ONLY when initiated by the instructor and approved by the division dean; ONLY if you are able to document mitigating circumstances; and ONLY if you were making satisfactory progress in the course. **Students are advised to discuss attendance irregularities with the instructor. Do not simply stop attending. Failure to properly complete the withdrawal procedure may result in the assignment of "F" or "U" grades to your permanent record.**

Disability Services Statement

Disabilities Services of Tidewater Community College provides students, faculty, and staff programmatic and physical access in a supportive atmosphere and in accordance with Section 504 of the 1973 Rehabilitation Act and the Americans with Disabilities Act of 1990. In appreciation of the unique talents and needs of students with disabilities and chronic health issues, Disabilities Services further provides an array of services designed to enhance all educational experiences. *Students with disabilities or chronic health problems are encouraged to identify themselves to a Disability Services [DS] Counselor as early as possible. DS Counselors are on all campuses. Students with documented disabilities may qualify for academic accommodations such as more time on tests, sign language interpreting or Braille.*

Emergency Procedures

In the event of a bomb threat, tornado, or fire, students and staff may be asked to evacuate the building or move to a secure location within the building. Evacuation routes for movement to an external location or to a shelter within the building are posted at the front of the room. Students should review the maps and make sure that the exit route and assembly location for the building are clearly understood. If you have a disability that may require assistance during an evacuation, please let your faculty know at the end of the first class.

Cheating

College rules state that a student may be subjected to disciplinary action for academic cheating, plagiarism, or assisting in cheating or plagiarism. Disciplinary penalties include college dismissal or suspension. In addition, cheating, plagiarism, or assisting such activity is a most serious form of academic misconduct, and will in the sole discretion of the faculty member result in a grade of F on the work or for the course. A single act of cheating may subject a student to both a failing grade in the course, and student disciplinary action perhaps involving suspension or dismissal from TCC.